



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/575,680

04/13/2006

Yasuhiro Watanabe

0707590043

4618

20277 7590 09/29/2009
MCDERMOTT WILL & EMERY LLP
600 13TH STREET, N.W.
WASHINGTON, DC 20005-3096

EXAMINER

ZHANG, YUANDA

ART UNIT

PAPER NUMBER

2828

MAIL DATE

DELIVERY MODE

09/29/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

DETAILED ACTION

Response to Amendment

1. Amendment to claims 1, 5 & 6, cancellation of claim 4, and newly added claim 7 are acknowledged. In view of amended claim 1, the Applicant has argued that neither Komoto nor Matsuda discloses "wherein a lateral width of the submount along the front part of the submount is 400 μ m or more but 700 μ m or less." In particular, Matsuda discloses a substrate interpreted to be the submount having a dimension of 300 μ m x 400 μ m x 100 - 120 μ m and the Applicant has argued that it's unclear whether the width of the substrate corresponds to 400 μ m. The Examiner has found the argument persuasive and the previous rejection has been withdrawn.

Response to Arguments

2. Applicant's arguments with respect to claims 1-3 and 5-7 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

Art Unit: 2828

2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
5. Claims 1-3 and 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanabe et al (US Patent 6,735,230 B1) in view of Abe (US PG Pub 2002/0021725 A1).
6. In re claim 1, with reference to figures 9a & 9b, Tanabe et al disclose a semiconductor laser device comprising: a semiconductor element (LD chip 30, col. 25 lines 29-32) formed on a substrate; and a submount (31, col. 25 lines 33-35), mounted on a front part thereof, the semiconductor laser element with a light-emitting face thereof directed forward and having first and second electrode pads (wiring films 33 & 34, col. 25 lines 36-37) connected to electrodes of the semiconductor laser element by being kept in contact therewith, wherein no photodetector is provided on the submount (see figure 9b), wherein the first and second electrode pads are formed to extend farther behind the semiconductor laser element (wiring films 33 & 34 extending behind LD chip 30, see figure 9b), and are wire-bonded (via gold wire 38) the semiconductor laser element, and wherein a lateral width of the submount along the front part of the submount is 400 μm or more but 700 μm or less (sub-mount 31 has a width of 0.5 mm or 500 μm since its dimension is 0.8 mm x 0.5 mm x 0.4 mm, length x width x thickness, col. 25 lines 33-35). Tanabe et al do not disclose a two-beam semiconductor element having first and second semiconductor laser elements that can be driven independently and that are formed integrally on a substrate. However, with reference to figure 7, Abe discloses a two-beam semiconductor element (monolithic laser diode 14a, paragraph

Art Unit: 2828

[0133]) having first and second semiconductor laser elements (LD1 & LD2, paragraph [0134]) that can be driven independently and that are formed integrally on a substrate (30, paragraph [0131]). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the semiconductor laser device of Tanabe et al with the two-beam semiconductor laser element as taught by Abe in order to obtain various output wavelengths.

7. In re claim 2, Tanabe et al disclose wherein the first and second electrode pads are wire-bonded at a rear end of the submount (see figure 9b).

8. In re claim 3, Tanabe et al disclose wherein a distance from the rear end of the semiconductor laser element to a position where the first and second electrode pads are wired-bonded is 300 μm or shorter (The Examiner notes that the dimension of LD chip is 0.25 mm x 0.25 mm x 0.1 mm, length x width x thickness, col. 24 lines 31-38, the dimension of the sub-mounted as disclosed previously is 0.8 mm x 0.5 mm x 0.4 mm, length x width x thickness, and the wire bonded positions are approximately at the mid point of the length of the submount as shown in figure 9b. Given the dimensions above, the distance from the rear of the semiconductor laser element to the wire bonded positions is approximately $0.8 \text{ mm} / 2 - 0.25 \text{ mm} = 0.4 \text{ mm} - 0.25 \text{ mm} = 0.15 \text{ mm}$ or 150 μm which is shorter than 300 μm).

9. In re claim 5, Tanabe et al disclose a metal frame (heat sink 40 which the sub-mounted is mounted on, col. 26 lines 9-14); wherein the submount is mounted directly on the frame, and no photodetector is directly mounted on the frame (no photodetector mounted on the heat sink, see figure 9a).

Art Unit: 2828

10. In re claim 6, Tanabe et al disclose wherein the semiconductor laser device is built as a three-terminal semiconductor laser device having only three terminals (44-46, col. 25 lines 65-67).

11. In re claim 7, Tanabe et al disclose three bonding wires, each bonded to a location behind the submount and to one of an electrode of the semiconductor element, the first electrode pad, and the second electrode pad (see figure 9b).

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to YUANDA ZHANG whose telephone number is

Art Unit: 2828

(571)270-1439. The examiner can normally be reached on Monday-Friday, 9:00am-5:00pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Minsun Harvey can be reached on 571-272-1835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Yuanda Zhang/
Examiner, Art Unit 2828
09/23/09

/Minsun Harvey/
Supervisory Patent Examiner, Art Unit 2828